

**EFFICIENT IMPLEMENTATION OF A DECISION DIRECTED
PHASE LOCKED LOOP (DD-PLL) FOR USE WITH SHORT
BLOCK CODE IN DIGITAL COMMUNICATION SYSTEMS**

ABSTRACT OF THE DISCLOSURE

A decision directed phase locked loop (DD-PLL) is efficiently implemented in a communication receiver. The phase locked loop includes an enhanced block decoder inside a phase detector which takes in the baseband complex samples and the current channel phase estimate (or the tracked phase) and generates a feedback phase error term. A loop filter filters the phase error terms and a phase accumulator updates the tracked phase estimate on each iteration of the loop.

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